

What is claimed is:

1. A speech recognition method comprising:

an analysis step of carrying out acoustic analysis of  
an input speech signal, and of outputting power in  
5 correspondence with the input signal;

a start/finish point range determining step of detecting,  
as hill segments, segments in which the power continuously  
surpasses a predefined threshold value, with the hill segment  
where the power is largest considered to be the greatest hill  
10 segment, of assuming that a start-point range exists prior to  
the point at which the greatest hill segment goes below the  
threshold value and assuming that a finish-point range exists  
following the point at which the greatest hill segment goes  
above the threshold value, and of outputting combinations of  
15 start-point ranges and finish-point ranges; and

an identification step of performing pattern matching  
between reference patterns and patterns defined by the  
combinations of the start-point ranges and the finish-point  
ranges.

20 2. A speech recognition method according to claim 1,  
wherein, in the start/finish point range determining step, a  
plurality of combinations of the start-point ranges and the  
finish-point ranges are outputted, and in the identification  
step, pattern matching is performed between the reference  
25 patterns and each of the patterns defined by all the

combinations of the start-point ranges and the finish-point ranges that are outputted in the start/finish point range determining step.

3. A speech recognition method according to claim 1,  
5 wherein, in the start/finish point range determining step, among the detected hill segments the hill segment in which accumulated power is largest is considered to be the greatest hill segment.

4. A speech recognition method according to claim 1  
10 wherein, in the analysis step, the power is outputted by detection points, and in the start/finish point range determining step, among the detected hill segments, that hill segment in which the sum of a given number of the largest detection-point power values, from among the power values for  
15 each of the detection points, is largest, is considered to be the greatest hill segment.

5. A speech recognition method according to claim 1,  
wherein, in the start/finish point range determining step, the start-point range is assumed to exist in a hill segment prior  
20 to the greatest hill segment, near the point where the threshold value is surpassed, and the finish-point range is assumed to exist in a hill segment following the greatest hill segment, near the point where the threshold value is not surpassed.

6. A speech recognition method according to claim 1,  
25 wherein, in the start/finish point range determining step, a

zone width in which the start-point range is assumed to exist and a zone width in which the finish-point range is assumed to exist are different for each hill segment.

7. A speech recognition method according to claim 1,  
5 wherein, in the analysis step, the power is outputted by frames, and in the start/finish point range determining step, a frame in which the power goes below the threshold value is considered to be the point at which the threshold value is gone below, and a frame in which the power surpasses the threshold value is  
10 considered to be the point at which the threshold value is surpassed.

8. A speech recognition apparatus comprising:

an analysis means for carrying out acoustic analysis of an input speech signal, and for outputting power in  
15 correspondence with the input signal;

a start/finish point range determining means for detecting as hill segments, segments in which the power continuously surpasses a predefined threshold value, with the hill segment where the power is largest considered to be the  
20 greatest hill segment, for assuming that a start-point range exists prior to the point at which the greatest hill segment is below the threshold value and assuming that a finish-point range exists following the point at which the greatest hill segment is above the threshold value, and for outputting  
25 combinations of start-point ranges and finish-point ranges; and

an identification means for performing pattern matching between reference patterns and patterns defined by the combinations of the start-point ranges and the finish-point ranges.

5           9. A speech recognition apparatus according to claim 8, wherein the start/finish point range determining means outputs a plurality of combinations of the start-point ranges and the finish-point ranges, and the identification means performs pattern matching between the reference patterns and each of the  
10 patterns defined by all the combinations of the start-point ranges and the finish-point ranges that the start/finish point range determining means outputs.

          10. A speech recognition apparatus according to claim 8, wherein the start/finish point range determining means  
15 considers, from among the detected hill segments the hill segment in which accumulated power is largest to be the greatest hill segment.

          11. A speech recognition apparatus according to claim 8, wherein the analysis means outputs the power in  
20 detection-points intervals, and the start/finish point range determining means considers, among the detected hill segments, that hill segment in which the sum of a given number of the largest detection-point power values, from among the power values for each of the detection points, is largest, to be the  
25 greatest hill segment.

12. A speech recognition apparatus according to claim 8, wherein the start/finish point range determining means assumes the start-point range exists in a hill segment prior to the greatest hill segment, near the point where the threshold value is surpassed, and assumes the finish-point range exists in a hill segment following the greatest hill segment, near the point where the threshold value is not surpassed.

13. A speech recognition apparatus according to claim 8, wherein the start/finish point range determining means is configured such that a zone width in which the start-point range is assumed to exist and a zone width in which the finish-point range is assumed to exist are different for each hill segment.

14. A speech recognition apparatus according to claim 8, wherein the analysis means outputs the power in frame intervals, and the start/finish point range determining means considers a frame in which the power goes below the threshold value to be the point below the threshold value, and a frame in which the power surpasses the threshold value to be the point at which the threshold value surpasses.